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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,715

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Jukka Vesterinen

915-007.073

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7590

05/31/2006

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EXAMINER

CAO, HUEDUNG X

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,715

Applicant(s)

VESTERINEN, JUKKA

Examiner

Huedung X. Cao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) 1-3, 7-13 and 17-21 is/are allowed.
6) ☒ Claim(s) 14-16 is/are rejected.
7) ☒ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Applicants' Election without traverse

1. Applicant's election without traverse of claims 1-3, and 7-21 in the reply filed on 03/22/2006 is acknowledged.

Claims 22-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/22/2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, and 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (Specification, pages 1-4, and figure 1) in view of RAWNICK et al. (US 2003/0214437 A1).

As per claim 1, Prior Art teaches "a device" (Prior Art, figure 1), comprising:
an at least partially plane antenna carrier with a first side and a second side, at least one first Printed Wiring Board (PWB) being attached to said first side of said antenna carrier and having a first radiation structure formed on it (Prior Art, figure 1, PWB 2, and pages 3, lines 4-27), and at least one second PWB being attached to said

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second side of said antenna carrier wherein said at least one second PWB acts as a parasitic antenna element; and wherein said first PWB is positioned on said first side of said antenna carrier and said second PWB is positioned on said second side of said antenna carrier so that said second PWB partially overlaps said first PWB which Prior Art does not explicitly disclose. However, Rawnick teaches that second PWB being attached to said second side of said antenna carrier, wherein said at least one second PWB acts as a parasitic antenna element, and said second PWB partially overlaps said first PWB is widely used in the art (Rawnick, figure 1, parasitic element 20, and paragraph [0002]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a second printed circuit board to Prior Art's antenna system, as taught by Rawnick doing so it would improve the gain of impedance matching of the antenna.

Claim 2 adds into claim 1, wherein said first and/or second PWBS are one layer PWBS that comprise at least one metallic layer and/or at least one dielectric layer (specification, pages 3, lines 11-27).

Claim 3 adds into claim 1, wherein said first and/or second PWBS further comprise at least one adhesive layer, and wherein said first and/or second PWBS are attached to said antenna carrier via said adhesive layer (specification, page 3, lines 4-9).

Claim 7 adds into claim 1, further comprising a protection layer that at least partially covers said first PWB (specification, page 4, lines 15-18).

Claim 8 adds into claim 1, further comprising at least one pogo pin that penetrates said antenna carrier to electrically contact said radiation structure of said first PWB (specification, page 3, line 29-page 4, line 13).

Claim 9 adds into claim 1, wherein said first PWB is positioned on said first side of said antenna carrier and said second PWB is positioned on the second side of the antenna carrier so that the first and second PWB at least partially overlap (Rawnick, figure 1)

Claim 10 adds into claim 1, wherein said first radiation structure is essentially line-shaped (Prior art, figure 1, radiations 2-1 and 2-2; specification, page 3, lines 24-27).

Claim 11 adds into claim 10, wherein said first radiation structure is at least partially bent (Prior art, figure 1, radiations 2-1 and 2-2; specification, page 3, lines 24-27).

Claim 12 adds in to claim 1, wherein said second PWB is essentially plane (Rawnick, figure 1, element 20).

Claim 13 adds into claim 1, wherein said antenna carrier consists of a dielectric material (specification, page 3, lines 4-9).

As per claim 14, Prior Art teaches "a device" (Prior Art, figure 1), comprising:
an at least partially plane antenna carrier with a first side and a second side, at least one first Printed Wiring Board (PWB) being attached to said first side of said antenna carrier and having a first radiation structure formed on it (Prior Art, figure 1, PWB 2, and pages 3, lines 4-27), wherein the first radiation structure is tuned to a first

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frequency range and wherein the second radiation structure is tuned to at least one second frequency range (specification, page 3, lines 11-27); and at least one second PWB being attached to said second side of said antenna carrier; and wherein said first PWB is positioned on said first side of said antenna carrier and said second PWB is positioned on said second side of said antenna carrier so that said second PWB partially overlaps said first PWB which Prior Art does not explicitly disclose. However, Rawnick teaches that second PWB being attached to said second side of said antenna carrier, and said second PWB partially overlaps said first PWB (Rawnick, figure 1, parasitic element 20, and paragraph [00020]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a second printed circuit board to Prior Art's antenna system, as taught by Rawnick doing so it would improve the gain of impedance matching of the antenna

Claim 15 adds into claim 1, wherein said device is a hand-held device, in particular a GPS-capable or Galileo-capable mobile phone (specification, page 2, lines 1-7).

Claim 16 adds into claim 14, wherein said first frequency range is a frequency range of a satellite navigation system and wherein said at least one second frequency range is a frequency range of mobile radio system (specification, page 3, lines 11-27).

Claim 17 is similar in scope to claim 1; therefore; it is rejected for the same reason.

Claim 18 claims a method based on the antenna system of claim 1; therefore; it is rejected for the same reason.

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Claim 19 claims the computer program based on the antenna system of claim 1; therefore, it is rejected for the same reason.

Claim 20 claims a radio system is similar in scope to claim 1 except for at least one base station which Prior art does not explicitly disclose. However, it would have been obvious to one of ordinary skill in the art to include the base station to have a complete radio system.

Claim 21 adds into claim 20, wherein said mobile station is capable of receiving signals transmitted by at least one satellite and of at least partially determining its position from said received signals (specification, page 1, lines 12-17).

Response to Arguments

4. Applicant's arguments filed on 03/22/2006 have been fully considered but they are not persuasive.

Applicant argues that Rawnick fails to disclosed that wherein said first PWB is positioned on said first side of said antenna carrier and said second PWB is positioned on said second side of said antenna carrier so that said second PWB partially overlaps said first PWB which is not correct. Rawinick's parasitic antenna having a radius that defines a resonnant frequency that fall within a bandwidth of antenna (paragraph 2, line 5); therefore, that radius can be smaller, larger (i.e., partially or completely overlap) than the radius of antenna 10; and it's located on the insulating dielectric foam layer 22.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Inquiries

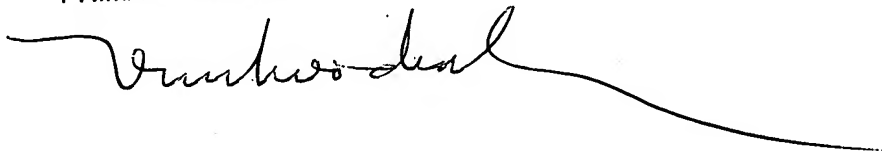
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan, can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRINH DINH
PRIMARY EXAMINER

Huedung Cao
Patent Examiner

A handwritten signature in black ink, appearing to read 'Trinh Dinh', with a long horizontal flourish extending to the right.